



**DECLARATION OF MR. MICHAEL NORTON**

I, Michael Norton, state as follows under penalty of perjury:

1. I hold a Bachelor of Science degree in Chemistry from University of Houston awarded in 1980.
2. I was hired by The Dow Chemical Company in 1981 as a polyurethane chemist and worked for Dow Chemical in various positions of increasing responsibility until July 2000.
3. I am currently a principal of Norton Performance Consulting. My firm provides technical and communication services, primarily to the carpet industry.
4. In the course of my business, I have served as a technical advisor for carpet cushion applications for the Alliance for Flexible Polyurethane Foam (AFPF) from about October 2000 to present. AFPF is an industry organization focused on expanding the use of rebond polyurethane foam mainly as commercial broadloom carpet padding.

5. I have been compensated by Milliken & Company at my standard hourly consulting rate for time spent in the review of documents and in the preparation of this declaration. I am not an employee of Milliken & Company or any affiliated corporate entity and I have no ownership or other financial interest in the subject matter of any pending application or issued patent owned by Milliken & Company.

6. During the period of 1992 through July 2000, I was the Manager of Technical Services and Development (TS&D) for the Polyurethane Floor Covering Business at Dow Chemical in Dalton, Georgia. Prior to being named as Manager of TS&D, I held various positions working on development projects in the Floor Covering Business at Dow Chemical.

7. While working for Dow Chemical, I became familiar with development efforts within the industry relating to cushion-back carpet tile and perceptions regarding suitable materials of construction for such cushion-back tile. In particular, I was familiar with development efforts at Milliken & Company relating to the product described in United States Patent 4,522,857 to Higgins (the Higgins '857 patent) and subsequent improvements to that product. From about 1985 to 1991, I was involved with supporting the Milliken LM-6 cushion back carpet tile product having a pad made of polyurethane foam.

8. I note from the first paragraph of the Higgins '857 patent that the carpet tile described therein is intended to be suitable as a freelay carpet tile for use in commercial installations. Carpet products, especially freelay carpet tiles, intended for use in commercial installations are generally expected to have greater durability and strength than products used in residential installations.

9. Historically, as a general design philosophy for carpet tile, moving to materials of lower tensile strength, lower tear strength, lower elongation or lower density was considered undesirable due to the possibility of reduced dimensional stability or durability of the tile and/or unpredictable changes to the installation performance of the tile. A change in these foam properties when changing from one proven and acceptable foam to another unproven foam is an indicator of potential problems. Cushion materials that exhibited reductions in tensile strength, tear strength, elongation or density relative to known suitable materials would have been dismissed as unacceptable substitutes.

10. I have reviewed Application Serial No. 09/721,871 filed November 24, 2000 (the '871 application) and the Office Actions issued by the Patent Office in that case. I have also reviewed the Higgins '857 patent and United States Patent 5,610,207 to DeSimone et al. (the DeSimone '207 patent).

11. I note from my review of the Office Actions that the Patent Office has rejected the claims of the '871 application as being obvious over the combination of the Higgins '857 patent in view of the DeSimone '207 patent either alone or in combination with an additional reference. The Patent Office draws the following conclusion:

*It would have been obvious to one of skill in the art to substitute a rebond foam layer as taught by DE SIMONE for the foam layer of HIGGINS. Motivation to do so would be the advantages of said rebond foam, such as good cushioning properties at low cost (i.e. recycled material).*

This statement is incorrect in view of the level of ordinary skill in the carpet tile art at the time the '871 application was filed. At that time, one skilled in the carpet tile art would not have made the combination proposed by the Office Action for numerous reasons.

12. The fact that the substitution advocated by the Patent Office would not have been considered suitable by one of ordinary skill in the art at the time the '871 application was filed is consistent with my experience involving actual development efforts to change the foam layer in the carpet tile described in the Higgins '857 patent.

13. In practice, the carpet tile described in the '857 patent initially incorporated a foam layer of TDI polyurethane. While at Dow Chemical, I was involved in development efforts with Milliken to change the foam cushion layer of the carpet tile in the '857 patent from a TDI polyurethane to an MDI polyurethane.

14. For a tile to have desired performance, all layers including the cushion must be considered. Since all layers of a carpet tile work in relation with one another to yield a desired performance, in making the conversion from TDI to MDI, polyurethane, it was considered essential to retain substantially comparable properties in the foam layer to avoid reduced performance or failure.

15. Despite the fact that MDI polyurethanes were generally known, the development of an MDI formulation that was considered suitable as a replacement material in the tile of the Higgins '857 patent required approximately two man-years of work. During the development effort, cushion materials that exhibited substantial reductions in physical or performance properties such as firmness as measured by compression load deflection, dynamic fatigue performance, tensile strength, tear strength, elongation or density relative to the known suitable TDI polyurethane would have been dismissed as unacceptable substitutes. The mindset of avoiding cushion materials exhibiting any substantial reduction in such physical or performance properties for use in carpet tiles due to fear of failure persisted

through the 1990's and would still have been in place at the time the '871 application was filed.

16. Rebond foam pad was known for many years prior to the time the '871 application was filed.

17. Cushioned carpet tile was known for many years prior to the time the '871 application was filed.

18. I have been involved in floor covering technology since 1985 and I am not aware of any carpet tile product incorporating rebound foam prior to the time the '871 application was filed.

19. Rebond foam is understood to generally have lower tensile strength, tear strength and elongation than a corresponding virgin foam.

20. Based on my experience regarding performance requirements for tile, I was surprised to learn that a carpet tile had been made with a rebound foam cushion.

21. Based on my experience working with Milliken on product modifications for the tile disclosed in the Higgins '857 patent, the substitution of a rebond foam layer for the advocated high density polyurethane would have been contrary to prevailing philosophies relating to carpet tile. In this regard the teachings of the DeSimone '207 patent would actually have provided a disincentive to the proposed modifications since the data highlights features of rebond foam relative to virgin foam that would have been considered undesirable to those of ordinary skill in the tile art at the time the '871 application was filed. In particular, I note that from a comparison of Examples 1-11 to Example 12 in the DeSimone '207 patent that the disclosed rebond foams sandwiched between layers of virgin foam showed significant reductions in tensile strength, tear strength, and elongation relative to a corresponding virgin foam. In addition, the compression set was greatly increased. The data in Examples 18 and 19 of the DeSimone '207 patent illustrate still a further decrease in tensile strength, tear strength and elongation when sandwiching layers of virgin foam are not used. One of skill in the tile art would have recognized that decreasing elongation can give rise to friability, a severe deficiency in cushion fatigue performance characterized by foam degradation and crumbling. Reducing tear strength can yield a cushion with poor durability. Increasing compression set can result in too great a tendency for thickness variation between tiles and portions of tiles in both packaging and use. Such failure modes may negatively affect dimensional stability, which is particularly important in carpet tile, especially freelay carpet tile.

22. Based on my experience, at the time the '871 application was filed, one of skill in the tile art would not have replaced the high density polyurethane foam advocated by the Higgins '857 patent with a rebond foam having density levels as disclosed in the DeSimone '207 patent. In this regard I note that despite efforts to reduce material costs for the cushion layer in the tile disclosed in the Higgins '857 patent, the density was maintained at about 16 pounds per cubic foot due to concerns over cushion quality and the effect on dimensional stability, long term durability, and installation performance of the cushion-back tile. Due to these concerns, further density reductions were avoided despite potential raw material cost savings. The highest density reported in the DeSimone '207 patent appears to be 97 grams per liter (6.06 pounds per cubic foot) reported in Example 29. Cushion materials of such density levels would have been discounted as unsuitable replacements for the high density foam advocated by the Higgins '857 patent.

23. Based on my experience, the fact that the carpet tile described in the Higgins '857 patent is intended to be suitable as a freelay carpet tile for use in commercial installations would have weighed against the proposed substitution of rebond foam.



24. When I first became involved with AFPP, rebond foam pad was not generally known to be suitable as a carpet cushion in commercial applications. I was skeptical whether rebond foam pad could perform in a commercial environment even as an underlay for broadloom.

25. In my work on behalf of AFPP, I have experienced skepticism from third parties regarding the ability of rebond foam to perform even as a broadloom underlay when subjected to rigorous commercial installation conditions.

26. Skepticism regarding the suitability of rebond foam pad for commercial installations would have been even greater at the time the '871 application was filed due to fears relating to performance failures.

*I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both and that such willful false statements may jeopardize the validity of the current application or any application issued thereon.*

Michael A. Norton  
(Signature)

2/03/2005  
(Date)

MICHAEL A. NORTON  
(Name Printed/Typed)